

GEIA/ACCENT Steering Committee Report -- 2006

The GEIA/ACCENT Steering Committee (SC) had a full day meeting November 28 before the GEIA 2006 Open Conference and at the end of the day November 30. Discussions within the SC meeting, plus the presentations and discussions during the Conference itself, resulted in clear statements of GEIA goals, operations, and priorities for 2007. New opportunities for addressing scientific issues organized around the four Conference themes and for exploring technical advances in data management relevant to GEIA information exchange emerged.

GEIA Goals and Operations

GEIA brings together people, analyses, data, and tools to:

- Quantify the anthropogenic emissions and natural exchanges of trace gases and aerosols that drive earth system changes **and**
- Facilitate use of this information by the research, assessment and policy communities.

GEIA's goals are accomplished through:

- Scientific conferences, workshops, and schools; ongoing dialogue and outreach; and enhanced use of the GEIA network and web site for communication, coordination, and collaboration
- Data portal including global and regional datasets, retaining integrity and authorship of each set, and tools for facilitating data intercomparisons
- Living reviews of available emissions data and periodic synthesis assessments
- Projects proposed by the scientific community and endorsed by GEIA

GEIA Priorities for 2007

GEIA Projects

In order to stimulate the involvement of the emission community in defining some new projects for GEIA, GEIA will propose and endorse projects that encourage activities that improve understanding of global emissions and fluxes and meet the following criteria:

- Relevant to international progress on emissions
- Enhances understanding of how human activities influence climate change
- Useful to broad scientific community
- Are either global or are regional activities that will develop understanding on both global and regional levels
- Involvement of diverse communities/Interdisciplinary project
- Fits under a GEIA theme Should you list/point to the themes?_

For that purpose, the SC has defined a mechanism for developing GEIA projects will be similar to the procedures used by other IGBP projects (e.g., ILEAPS, AIMES, IGAC), including these steps:

1. A call for projects and specific criteria will be distributed to the GEIA network
2. Projects will be submitted to the SC for review.

3. Suggestions will be made and projects will be endorsed if appropriate.
4. An SC member will be assigned as a liaison for each endorsed project.

Benefits of being endorsed as a GEIA Project include:

- SC can offer suggestions to project leaders, such putting them in contact with potential collaborators in the GEIA network.
- Visibility of project can be increased by highlighting it in various IGBP newsletters, on the web sites and at conferences, thereby increasing use of and references to project results.
- GEIA endorsement may improve ability to obtain funding.

Scope: Projects associated with the following specific themes (including measurements needed to achieve the project goals), in particular, will be encouraged:

- Web portal development and data processing to facilitate use of inventories
- Use of observations in determining emissions and exchange processes
- Systematic evaluations and comparisons of inventories including
 - Consistency of inventories at different spatial and temporal scales
 - Use of different drivers for calculating emissions
 - Establishment of recommendations for emissions and factors
- Evaluation of uncertainties and implications for needed research
- Natural emissions: model development and treatment of driving variables
- Temporal/Spatial variations of emissions: treatments and consistencies
 - Spatial: local, regional, global
 - Temporal: seasonal, week, day
 - Megacities

Assessment of Emissions

The workshop “Earth System Models: The Next Generation”, which took place at the Aspen Global Change Institute in August 2006, concluded that there is a need for an integrated assessment of reactive gas, aerosol and carbon emissions. This assessment should complement other assessments (IPCC, HTAP, NARSTO, etc.). The first step, over the next few months, is to develop goals and content of the assessment and produce this in the form of a scientific publication coordinated by GEIA in collaboration with HTAP and others. The publication will be based on an update of the GEIA emission reviews that were produced a few years ago.

Potential interested parties include: IGBP, WCRP, CLRTAP, IHDP, ACCENT, EMEP, HTAP, NARSTO, and others. The SC will assist by provide key contacts for assessment topics.

ESF-CNRS-ACCENT Summer School

The school, focusing on surface emissions and prediction of atmospheric composition changes, is scheduled for September 10-21, 2007 and will be held in Ile d’Oleron, France. Themes include:

- Emissions (gases and aerosols)
- Chemical schemes for atmospheric chemistry

- Development of chemistry-transport models
- Impact of changes in emissions of the chemical composition of the atmosphere
There will be 15 teachers and approximately 60 participants. The school will be announced in January 2007 on the ACCENT, GEIA and other web sites. Support for the school is being sought from other organizations in addition to ESP, CNRS and ACCENT.

Other 2007 Action Items

Communicate GEIA goals and strategies, highlighting GEIA's increased value.

GEIA, in its initial phase (1990-2002), mainly produced and distributed a global gridded inventory for each species. GEIA now has a much broader set of goals and activities. As a result GEIA is much more valuable to research, assessment, and policy communities. A clear description of GEIA goals and operational plans will be developed and distributed to current and potential GEIA collaborators and users.

Develop strategies for funding all aspects of GEIA.

The ACCENT European Network partially funds the GEIA/ACCENT database portal, workshops and travel as well as other work related to emissions such as the modeling activities, satellite analysis work and emissions scenarios. In 2009, the ACCENT funding decrease and will no longer be sufficient and additional sources of funding are needed .

Coordinate with other groups working on emissions at the global/regional scales.

This will involve putting data in a format that enables information to be easily compared and harmonized; developing collaboration on GEIA projects, periodic synthesis assessments and other activities; and exploring how to maximize use of resources to develop needed data bases.

Develop an interactive mechanism for getting feedback and information.

GEIA will develop a web-based process for dealing with the feedback from data users and developers and will engage the SC to moderate relevant topics of discussion and disagreement.

Set up strategy for continual updating of the emission reviews.

The SC will provide leadership for the new organization of reviews, using existing and new review teams and writeups currently posted on the GEIA web site as a starting point.

Establish web links to information directly related to GEIA.

GEIA will post more visible links and descriptions to projects and major programs; various data bases and their documentation along with their associated reports and papers; and key contacts for the key emissions and exchange activities. SC will help accelerate this process by providing contacts for data and related information that is currently not on the GEIA web site.

New Directions Directly Related to GEIA

These areas will receive special attention and progress will tracked on the GEIA web site.

- Forecast of chemical weather or air quality forecasting
- Climate-chemical models
- Natural emissions development and evaluation
- Uncertainties on emissions distributions
- Emissions at a higher temporal resolution (seasonal, month, week, day)

The following is a list of projects highlighted by the SC for coordination with GEIA. These and other information sources noted below will be cited on the GEIA web site.

Projects

NatAir <http://natair.ier.uni-stuttgart.de/> NatAir is dedicated to improving and applying methods for the calculation of natural and biogenic emissions and assessment of impacts on air quality. NatAir could be used to evaluate existing natural emission data bases.

AIMES <http://www.aimes.ucar.edu/contacts.shtml> AIMES is the Earth System synthesis and integration project of the International Geosphere-Biosphere Programme (IGBP). The challenge for AIMES is to achieve a deeper and more quantitative understanding of the role of human perturbations to the Earth's biogeochemical cycles *and* their interactions with the coupled physical climate system. GEIA is part of AIMES.

ATLAS has a goal of providing global datasets including all of the information needed for developing assessments (eg, GDP, population, etc). ATLAS is part of AIMES. GEIA will coordinate with this new activity.

SOLAS <http://www.igbp.net/page.php?pid=188> SOLAS deals with the surface ocean-lower atmosphere interactions aspects of the IGBP. SOLAS has created a framework for bringing together data associated with individual projects. These data could feed into GEIA, helping to provide information on the ocean-air fluxes. Jeff Hare jeff.hare@uea.ac.uk is coordinating SOLAS. SOLAS is an important resource for providing carefully reviewed ocean emissions data.

IGAC <http://www.igac.noaa.gov/> IGAC wants more interaction with GEIA, for example through the Atmospheric Chemistry and Climate Initiative (AC&C -- a joint effort of WCRP and IGBP, with the SPARC and IGAC projects. Discussions will take place in order to strengthen the links between these projects.

iLEAPS <http://www.atm.helsinki.fi/ILEAPS/> iLEAPS is the integrated land ecosystem – atmosphere processes study which like SOLAS is part of IGBP. These data could feed into GEIA, helping to provide information on fluxes between terrestrial ecosystems and the atmosphere. iLEAPS is an important resource for providing carefully reviewed terrestrial emissions data. Formal projects involving collaboration between GEIA and iLEAPS should be developed. Canopy exchange is one project possibility. A conference entitled “*Towards a process-based description of trace gas emissions in land surface models*” is organized by iLEAPS in October 2007.

ACCENT European Network

<http://www.accent-network.org/>

There are several activities and projects where interaction with GEIA is important, including, for example, the model intercomparisons, biosphere-atmosphere exchange,

transport and transformation, satellite observations, scenario developments, and climate-chemistry interaction assessments.

ACCENT Sustainability

<http://www.accent-network.org/portal/joint-research-programme/atmospheric-sustainability>

The scientific objective of this subproject of ACCENT is to co-ordinate European research to improve on the basic parameterizations and process descriptions underlying air pollution issues, including links to terrestrial and marine systems and to local air quality, with an emphasis on the costs and benefits of emissions abatement. The IIASA data that is being developed needs to be linked to the GEIA web site and possible overlapping data bases could be examined.

HTAP <http://www.htap.org/> This task force on hemispheric transport of air pollution has some common objectives with GEIA in that HTAP is collecting inventories for present day and future emissions. HTAP and GEIA need to coordinate to ensure that the Assessment Proposal developed by GEIA and the work of HTAP will complement each other.

AMMA http://www.igac.noaa.gov/AMMA_AC.php This African Monsoon project is investigating regional climate, biomass burning, dust emissions, and biofuel emissions and can provide valuable information for GEIA.

EMEP <http://www.emep.int/> EMEP, traditionally associated with long-range transboundary air pollution in Europe, is moving more into global issues. The work on use of observations and modeling to evaluate emissions is of direct importance to GEIA.

Magacities GEIA will also develop connections with the IGAC Asian and other megacities projects.

EDGAR: <http://www.mnp.nl/edgar/model/> . The EDGAR project is providing gridded emissions datasets for ozone precursors and greenhouse gases. The EDGAR emissions distributions are also provided by the GEIA-Emissions portal.

TFEIP (<http://tfeip-secretariat.org/unece.html>): The Task Force on Emission Inventories (TFEIP) supports the work of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), and in particular to assist Parties' experts in providing high quality, comprehensive, timely and consistent emission data in accordance with their reporting obligations under the Convention and its Protocols.

Workshops associated with GEIA: reports and/or presentations available

JOINT ACCENT/GEIA Workshop on Anthropogenic emissions for non-OECD countries in global http://www.iiasa.ac.at/rains/meetings/ACCENT_GEIA/Accent-report.pdf

ACCENT/GEIA BBSO workshop - Satellites used to derive burnt biomass emissions
http://www.fire.uni-freiburg.de/course/meeting/2005/meet2005_13.htm

ACCENT AVOC - Expert workshop on VOC in the Polluted Atmosphere
http://www.accent-network.org/farcry_accent/index.cfm?objectid=3C7D202E-BCDC-BAD1-A5036B0CD1EB9CA9&flushcache=1&showdraft=1

Other workshops:

Aspen Earth System Modeling Workshop <http://www.agci.org/meetings.html>

This meeting addressed the form that the next generation of earth system models will take, with particular application for the IPCC Fifth Assessment Report. Participants at the meeting represented the scientific communities that are going beyond the traditional global coupled model components of atmosphere, ocean, land surface and sea ice, and including carbon cycle, dynamical vegetation, aerosols, and chemistry. Assessment Report from the workshop will be published.

Emission Assessments

NARSTO Emissions Assessment <http://www.cgenv.com/Narsto>

This comprehensive effort for North America is already discussed on the GEIA web site.

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